Natural Range of Variation

Patch Sizes

Recent science is using a concept called the Natural Range of Variation (NRV) to describe the natural processes that occur on the landscape from various ecological factors (Bollenbacher et al., 2016). This concept was used to develop and analyze the new Nez Perce-Clearwater National Forests Plan (Probert, 2017). Components that influence the NRV are species composition, vegetation structure and disturbance patch sizes.

Patch sizes vary across the landscape and change across habitat types, terrain and historical fire regimes. As part of the forest plan revision process, a patch analysis was done to determine the natural range of variation on patch sizes for the Nez Perce-Clearwater National Forests. Patch sizes varied by potential vegetation types (PVT), however, existing patches at the forestwide scale are smaller than the NRV. Average patch sizes across all broad PVT groups was found to be 375 acres. Patch size is further broken down into minimum and maximum sizes for each broad PVT, with warm dry PVT's having smaller patch sizes and cool moist PVT's having larger to represent the large, stand-replacing fires associated with that fire regime (USDA, 2019).

The Stray Creek project area is within the Idaho Batholith breaklands and contains habitat types within the warm moist PVT (as described in Milburn et al., 2015). Warm moist PVTs average patch size is 87 acres with a maximum of 225 acres (USDA 2019, Appendix B). Other research shows that in areas with a moderate warm, moist habitat type similar to the project area, patches from lethal fires could be 100-300 acres, while mixed-severity fires would create smaller patches (Mehl et al., 2009). These patch sizes are larger than the current direction (Forest Service Manual 2470, Region 1 Supplement #R1 2400-2016-1, Section 2471.1) that states that the size of openings created by even-aged silvicultural treatments in the Northern Rockies will normally be 40 acres or less. Continuing to manage an area using openings smaller than historical patch sizes can result in fragmentation and the inability to manage for desired species composition, such as maintaining early seral species on the landscape (USDA, 2014; Schantz, 2015; USDA, 2019).

For the Stray Creek project, the maximum possible opening being proposed would be 401 acres, which exceeds the average NRV for this area. For this project, the maximum opening size would only be proposed where treating a smaller area will not result in treating the extent of the root disease. See the Vegetation Effects document and the Forested Vegetation section of the Stray Creek Environmental Analysis for more information on the extent of root disease within the project area and the effects of root disease on stand productivity and forest health.

References

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